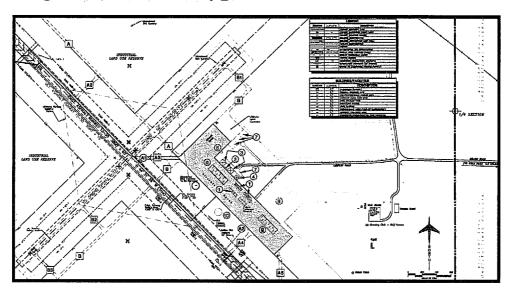


Chapter Five

AIRPORT PLANS



AIRPORT PLANS



The airport master planning process has evolved through several analytic efforts, as described in the previous chapters, which were intended to analyze future aviation demand, establish airside and landside facility needs, and evaluate options for the future development of the airside and landside facilities. The recommended master plan concept did not fully evolve until the Planning Advisory Committee (PAC) and Pima County officials had the opportunity to submit detailed comments on the Phase I Report. Following a review of the Airport Development Alternatives (see Chapter Four) by the PAC and Pima County staff, the development alternatives have been refined into a single master plan concept intended to define the future use and development of Ajo Municipal Airport. The purpose of this chapter is to describe in narrative and graphic form this Master Plan Concept.

AIRPORT DESIGN STANDARDS

The design and safety standards pertaining to

airport facilities are based primarily upon the characteristics of the critical design aircraft expected to use the airport. The critical design aircraft is the most demanding aircraft or "family" of aircraft which will conduct 500 or more operations (take-offs and landings) per year at the airport. FAA Advisory Circular 150/5300-13, Airport Design, is the primary reference for the design of airfield facilities. Within this advisory circular, a coding system has been established that identifies an airport's critical design aircraft. This design aircraft code, referred to as the Airport Reference Code (ARC), is a function of the critical design aircraft's approach speed and wingspan. The ARC was previously discussed in Chapter Three.

Currently, Ajo Municipal Airport is utilized by mainly small, single-engine piston aircraft. In the future these smaller general aviation aircraft will continue to be the main users of the Airport; however, future planning forecasts conducted and analyzed in Chapter Three do call for increased multi-engine and turboprop activity at the Airport. Turboprop and multi-engine aircraft in excess of 12,500

pounds would then be the most demanding aircraft to operate at the Airport. While most of the piston aircraft and some turboprop and business jet aircraft fall into the B-I ARC (approach speed greater than 91 knots but less than 121 knots and wingspans up to but not including 49 feet), some turboprop and business jet aircraft (i.e., Cessna Citation II and Beechcraft Super King-Air) fall within the B-II ARC (approach speed greater than 91 knots but less than 121 knots and wingspans 49 feet up to but not including 79 feet). While ARC B-II aircraft operations currently total less than 500 annually, the airport can expect an increase in use from aircraft within the B-II ARC during the planning period. All airfield facilities, therefore, should comply with B-II design and safety standards. In Chapter Four, Table 4A summarized the planning standards used in the ultimate design and layout of the airport.

MASTER PLAN CONCEPT

The Master Plan Concept includes the development necessary to accommodate the forecast demand at the airport through the planning period and includes improvements to both airside and landside facilities. The following provides a brief discussion of the major improvements planned for the airport through the planning period.

AIRFIELD DEVELOPMENT

The recommended master plan concept includes extending Runway 12-30 by 1,700 feet to a final length of 5,500 feet which would provide additional takeoff length for the full-range of ARC B-II aircraft expected to use the airport in the future. This extension

would be accomplished by extending the Runway 12 end 900 feet and the Runway 30 end 800 feet, and would most likely be completed in stages. However, for the intermediate term planning period a minimum length of 4,800 feet for Runway 12-30 is recommended. Runway 12-30 would be classified ARC B-II and be governed by related planning standards such as previously described in Chapter Four. Additionally, a full-length, parallel taxiway is recommended to service Runway 12-30. Finally, a pavement strength rating of 30,000 pounds dual wheel gear (DWL) is also recommended for both Runway 12-30 and it's associated parallel taxiway and connecting taxiway.

Should updated wind data (as recommended in Chapter Three) support the current Airport users expressed need for a crosswind runway, it is further recommended that Runway 5-23 be reactivated and paved to 3,800 feet in length by 60 feet in width with a pavement strength of 12,500 pounds single wheel gear (SWL). Like Runway 12-30, a full-length, parallel taxiway is also recommended for the cross-wind runway. This parallel taxiway would be rated at a pavement strength of 12,500 pounds SWL. Runway 5-23 and it's associated parallel taxiway would be classified ARC B-I, and be subject to ARC B-I planning standards which, again, are detailed in Chapter Four.

For Runway 12-30, a one-mile visibility minimum Global Positioning System (GPS) approach is proposed for the Runway 30 end to reduce the amount of time that the airport is inaccessible due to low visibility and cloud ceilings and to enhance the safety of operations during these periods. Additionally, it is recommended that one-mile visibility minimum GPS approaches be implemented

for the remaining three runway ends at Ajo Municipal Airport by the conclusion of the long-term planning period. Establishment of these GPS approaches are subject to airspace coordination with both the FAA and the Department of Defense.

Airfield lighting recommendations include: pavement edge lighting along all parallel taxiway and runway entrance/exit taxiways; apron and aircraft parking area lighting to enhance night operations and improve airport security; and precision approach path indicators (PAPI) to all runway ends.

LANDSIDE DEVELOPMENT

The recommended Master Plan Concept also proposes development on the northwest edge of the existing aircraft apron. This concept, as reflected on the Airport Layout Plan (ALP), depicts a future general aviation terminal building facility, two FBO or conventional hangar sites and an auto parking area all of which are located northeast of the existing T-Hangar area. North of this area is the recommended fuel storage facility site. To the south between the T-Hangar area and the southern FBO/conventional hangar is the aircraft wash rack site. Northeast of the fuel storage facility is a corporate parcel development area. It is recommended that the existing apron in this area be extended approximately 250 feet to the northeast to service the corporate parcel development site. A new local/itinerant tie-down area is to be constructed directly in front of the future terminal facility. An additional 4-bay T-Hangar would be constructed west of the northernmost existing T-Hangar, and the area west of the southern T-Hangar unit would be reserved for additional future T-Hangar expansion. The recreational development area with its related tie-down area would be located southeast of the T-Hangar area.

AIRPORT LAYOUT PLANS

The remainder of this chapter provides a brief description of the official layout drawings for the airport that will be submitted to the FAA and ADOT for review and approval. These plans, collectively referred to as the Airport Layout Plan Set, have been prepared to graphically depict the ultimate airfield layout, facility development, runway approach surfaces, runway protection zones, and the extent of the airport property. This set of plans include:

- Airport Layout Plan
- Terminal Area Plan
- Part 77 Airspace Plan
- Approach Profiles and Runway Protection Zone Plans
- Airport Property Map
- Airport Influence Area (AIA) Map

The airport layout plan set has been prepared on a computer-aided drafting (CAD) system for future ease of use and revision. This computerized plan set provides detailed information of existing and future facility layout on multiple layers that permits the user to focus in on any section of the airport at a desirable scale. The plan can be used as base information for design, and can be easily updated in the future to reflect new development and more detail concerning existing conditions (as made available through design surveys). The airport layout plan set is submitted to the FAA for approval and must reflect all future development for which federal funding is anticipated. Otherwise, the proposed development will not be eligible for federal funding. Therefore, updating these drawings to reflect changes in existing and ultimate facilities is essential.

AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) graphically presents the existing and ultimate airport layout. Detailed airport and runway data are provided to facilitate the interpretation of the Master Plan recommendations. Both airfield and landside improvements are depicted.

TERMINAL AREA PLAN

The Terminal Area Plan provides greater detail concerning landside improvements and at a larger scale than the ALP. The Terminal Area Plan includes details concerning all landside development east of Runway 12-30.

F.A.R. PART 77 AIRSPACE PLAN

To protect the airspace around the airport and approaches to each runway end from hazards that could affect the safe and efficient operation of aircraft arriving and departing the airport, Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, have been established for use by local authorities to control the height of objects near the airport. The Part 77 Airspace Plan included in this master plan is a graphic depiction of this regulatory criterion. The Part 77 Airspace Plan is a tool to aid local authorities in determining if proposed development could present a hazard to the airport and obstruct the approach path to a runway end. The following provides a discussion of the recommended FAR Part 77 airspace surfaces.

F.A.R. Part 77 Imaginary Surfaces

The Part 77 Airspace Plan assigns three-dimensional imaginary areas to each runway. These imaginary surfaces emanate from the runway centerline and are dimensioned according to the visibility minimums associated with the approach to the runway end and size of aircraft to operate on the runway. The Part 77 imaginary surfaces include the primary surface, approach surface, transitional surface, horizontal surface, and conical surface. Part 77 imaginary surfaces are described in the following paragraphs.

Primary Surface. The primary surface is an imaginary surface longitudinally centered on the runway. The primary surface extends 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the elevation along the nearest associated point on the runway centerline. Under Part 77 regulations, the future primary surface width for Runway 12-30 is 500 feet wide (ARC B-II), and 250 feet in width for Runway 5-23 (ARC B-I).

Approach Surface. An approach surface is also established for each runway. The approach surface begins at the same width as the primary surface and extends upward and outward from the primary surface end centered along an extended runway centerline. The approach surface for the future approaches to all runways at Ajo Municipal Airport extends 5,000 feet from the end of the primary surface at an upward slope of 20 to 1 to a width of 1,250 feet for Runway 5-23, and 1,500 feet for Runway 12-30.

Transitional Surface. Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface also connects with the approach surfaces of each runway. The surface rises at a slope seven to one up to a height which is 150 feet above the highest runway elevation. At that point, the transitional surface is replaced by the horizontal surface.

Horizontal Surface. The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 5,000 feet from the end of the primary surfaces of each runway.

Conical Surface. The conical surface begins at the outer edge of the horizontal surface. The conical surface then continues for an additional 4,000 feet horizontally at a slope of 20 to 1. Therefore, at 4,000 feet from the horizontal surface, the elevation of the conical surface is 350 feet above the highest airport elevation.

APPROACH PROFILES AND RUNWAY PROTECTION ZONES

The Approach Profiles and Runway Protection Zones depict that portion of the airspace surrounding Ajo Municipal Airport which directly relates to each runway end's respective approach surface. Though not as comprehensive as an F.A.R. Part 77 Airspace Plan drawing, these drawings do provide an accurate profile representation of the approach surfaces of each runway end as well as a

definitive plan and profile illustration of the respective runway protection zone (RPZ) for each runway end.

The Approach Profiles depict physical features such as topography, roadways, railroads, trees, etc. that are within the vicinity of each runway end and which may affect the approach surface. The dimensions and angle (approach slope) of these approach surfaces are a function of the runway service category approach classification. Runway Protection Zones, which are shown in both plan and profile on these drawings, are defined as "An area off the runway end to enhance the protection of people and property on the ground" (FAA Advisory Circular 150/5300-13 Chg. 5). Like the Approach Profiles, the Runway Protection Zones Plans and Profiles are used to identify physical features which may affect the approach surface of each particular runway end. The dimensions and extents of each runway's approach surface were previously described under the section detailing the Part 77 Airspace Plan drawing.

Like the approach surfaces, the runway protection zones are based on approach visibility minimums (i.e., one-mile, less than 3/4-mile, etc.), and the aircraft approach category (A, B, C, D, etc.). Again, similar to the approach surfaces, the RPZs are trapezoidal in shape and begin 200 feet off each runway end. The RPZ dimensions for Runway 5-23 are 250 feet (inner width) by 1,000 feet (length) by 450 feet (outer width) while Runway 12-30 measures 500 feet (inner width) by 1,000 feet (length) by 700 feet (outer width). All of the RPZs, both existing and ultimate, are located completely within Ajo Municipal Airport property.

Additional Airspace-related Considerations

In 1997, the State of Arizona enacted legislation which gives governing bodies and local communities the ability to establish Airport Influence Areas (AIA) to aid in notifying owners and potential purchasers of property that they are in an area that is subject to aircraft noise and overflight. The AIA legislation gives these entities discretion in establishing which property to include in the AIA. Pima County or other local authorities are required to give notice and hold hearings on an AIA proposal. Once an AIA is established and after public notice and hearings, the Airport Influence Area is recorded with the County Recorder.

Pima County, perhaps in conjunction with Ajo and other surrounding communities should consider establishing an AIA for Ajo Municipal Airport. To be compatible with any existing or proposed local height and hazard zoning, it is recommended that an AIA for Ajo Municipal Airport consist of the Part 77 horizontal surface. As shown on the Part 77 Airspace Plan drawing, the horizontal surface extends for a radius of 5,000 feet beyond each runway end. At this distance, the horizontal surface encompasses all aircraft traffic patterns and the approach surfaces to each runway end.

AIRPORT PROPERTY MAP

The Property Map provides historical information on the acquisition and identification of all land tracts that constitute current Airport property. The property map for Ajo Municipal Airport reflects the Airport both graphically and in legal terms as to both its present condition as well as its description at the time the Airport (originally Ajo Army

Airfield) was acquired by Pima County from the U.S. War Department in 1949.

AIRPORT INFLUENCE AREA (AIA) MAP

In 1997, the State of Arizona enacted legislation which gives governing bodies and local communities the ability to establish Airport Influence Areas (AIA) to aid in notifying owners and potential purchasers of property that they are in an area that is subject to aircraft noise and overflight. The AIA legislation gives these entities discretion in establishing which property to include in the AIA. Pima County and other local authorities are required to give notice and hold hearings on their respective AIA proposals. Once an AIA is established and after public notice and hearings, the Airport Influence Area is recorded with the County Recorder.

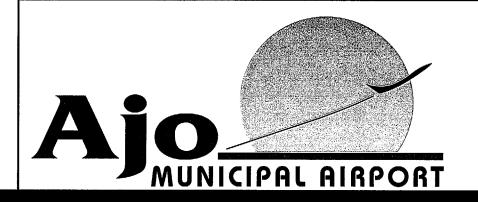
To control the encroachment of future development on the Airport, Pima County, as the Airport sponsor, should consider establishing an official AIA for Ajo Municipal Airport. It is recommended that an AIA for Ajo Municipal Airport consist of the Part 77 horizontal surface. As shown on the Airport Influence Area (AIA) Map, the horizontal surface extends for a radius of 5,000 feet beyond each runway end at Ajo Municipal Airport.

SUMMARY

The Airport Layout Plan Set is designed to assist Pima County in making decisions relative to future development and growth at Ajo Municipal Airport. The plan provides for development to satisfy expected airport needs

over the next twenty years and beyond. Flexibility will be a key to future development since activity may not occur exactly as forecast. The plan has considered demands that could be placed upon the Airport even beyond the twenty-year planning period to ensure that the facility is capable of accommodating a variety of circumstances. The F.A.R. Part 77 Airspace Plan and the Airport Influence Area (AIA) Map should be used as tools to ensure land use compatibility

and restriction of the heights of future structures or antennae which could pose a potential hazard to air navigation. The Airport Layout Plan Set also provides Pima County with options in marketing the assets of the Airport for community development. Following the general recommendations of the plan, the Airport can maintain it's long term viability and continue to provide aviation services to the region.



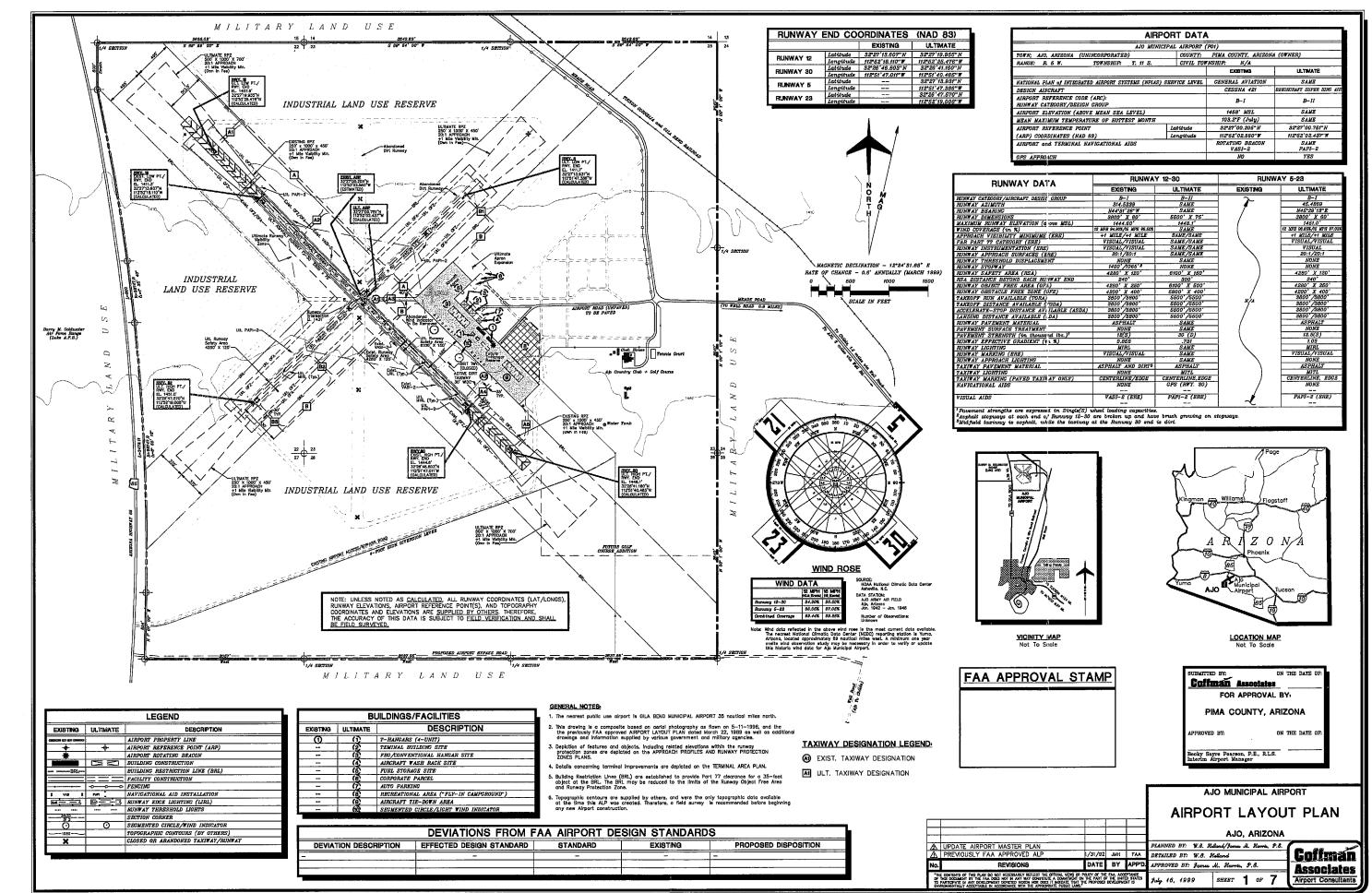
AIRPORT MASTER PLAN Ajo, Arizona

AIRPORT LAYOUT PLAN SET INDEX OF DRAWINGS

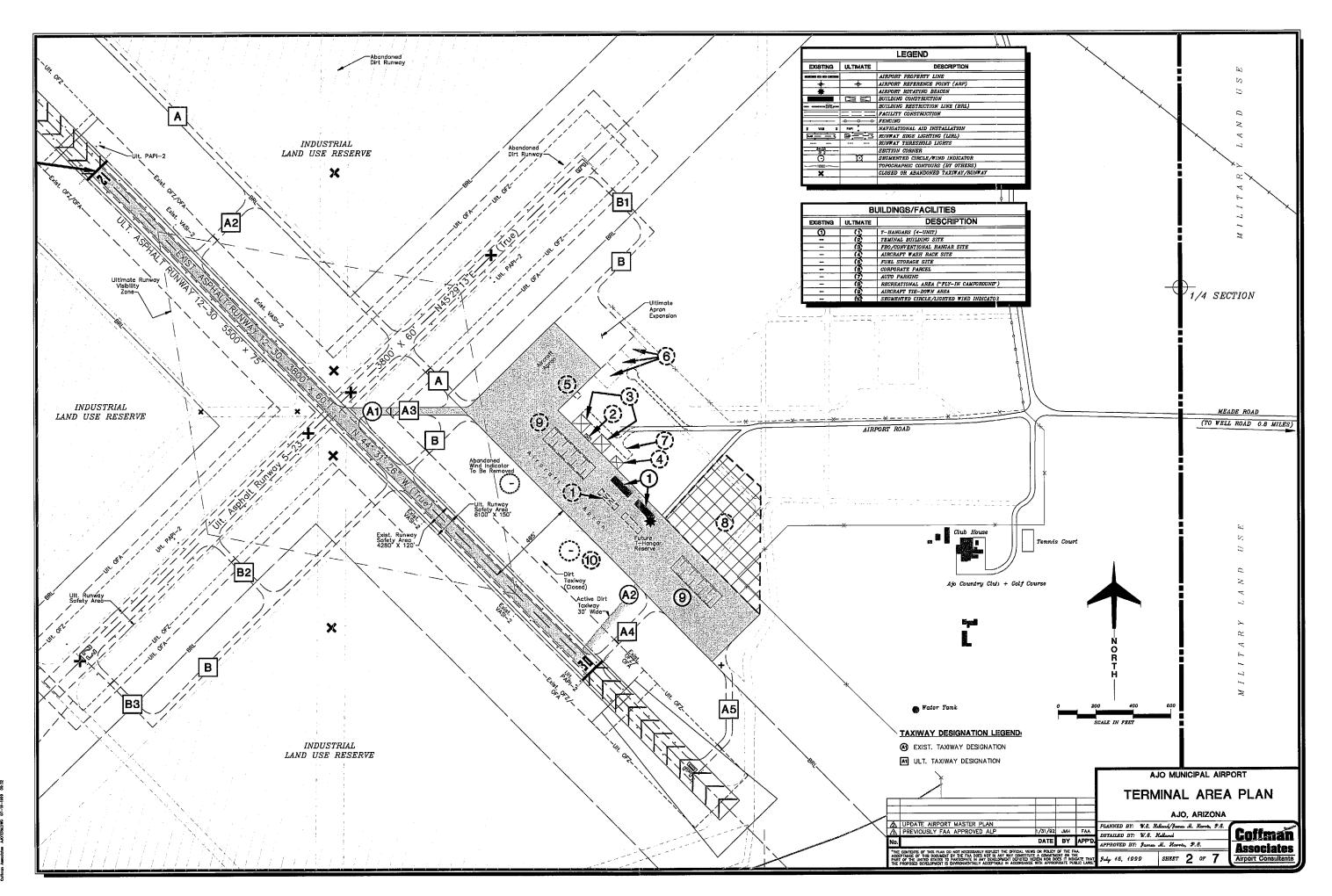
- 1. Airport Layout Plan
- 2. Terminal Area Plan
- 3. Part 77 Airspace Plan
- 4. Approach Profiles & Runway Protection Zones Runway 12-30
- 5. Approach Profiles & Runway Protection Zones Runway 5-23
- 6. Airport Property Map
- 7. Airport Influence Area (AIA) Map

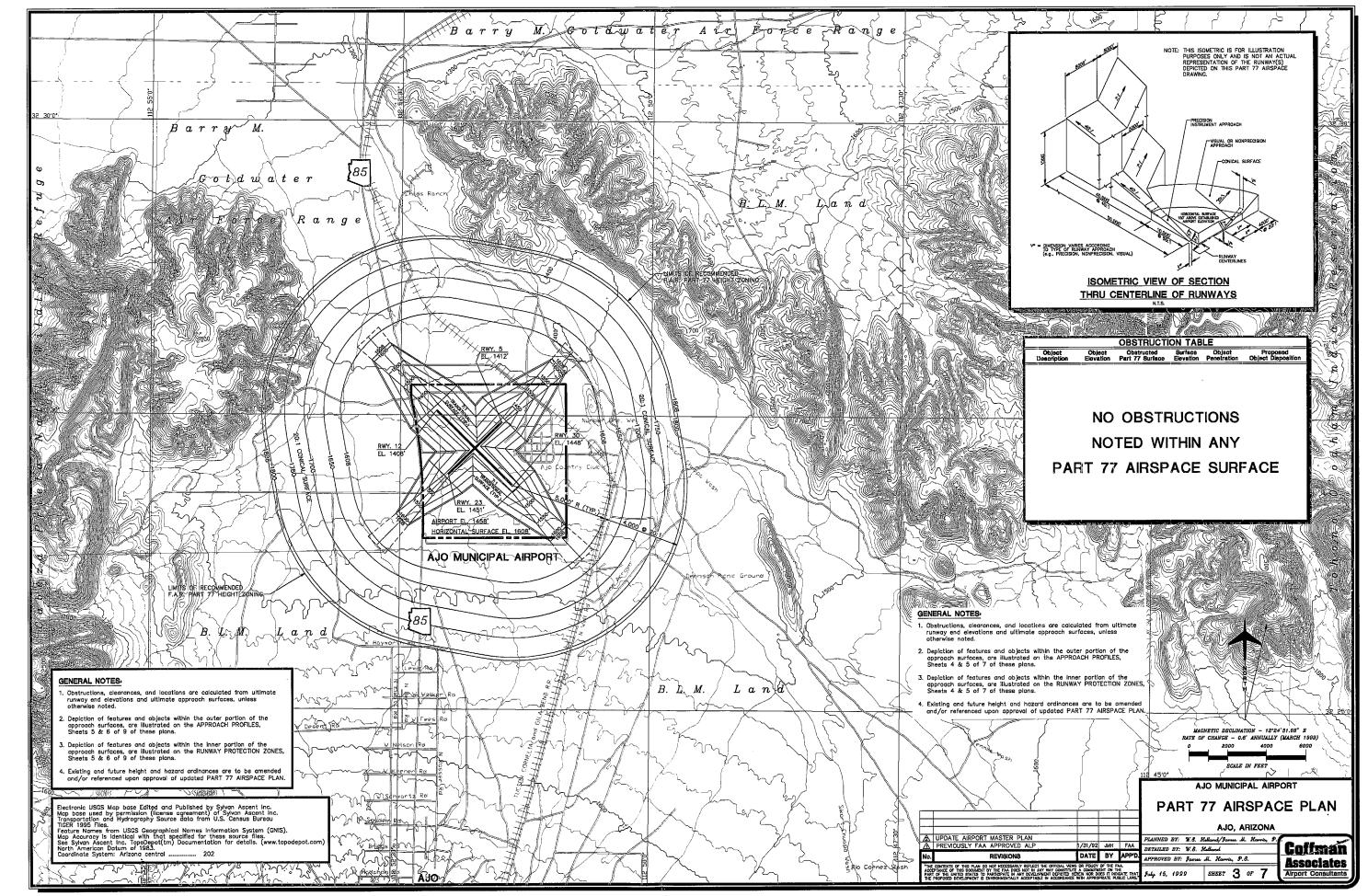
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